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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/782,494	02/13/2001	Stephen L. Buchwalter	YOR920000745US1(14029)	9921

7590 02/14/2003

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EXAMINER

NGUYEN, KHIEM D

ART UNIT PAPER NUMBER

2823

DATE MAILED: 02/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action**

Application No.

09/782,494

Applicant(s)

BUCHWALTER ET AL.

Examiner

Khiem D Nguyen

Art Unit

2823

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 04 February 2002 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check either a) or b)]

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
- ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
  - (b) ☐ they raise the issue of new matter (see Note below);
  - (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
  - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: see office action.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: 21 and 22.

Claim(s) objected to: \_\_\_\_\_

Claim(s) rejected: 1-20.

Claim(s) withdrawn from consideration: \_\_\_\_\_

8. ☐ The proposed drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_
10. ☒ Other: see office action

## **DETAILED ACTION**

### ***Response to Amendment after final or Advisory Action***

Applicant's arguments filed 2-04-2003 have been fully considered but they are not persuasive.

### ***Status of the pending claims after final rejection***

The finally rejected claims are 1-20.

Claims 21-22 are allowed.

### ***Status of the Pending Rejections or Objections***

Claims 1-20 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Gilleo et al. (U.S. Patent 6,228,678) in view of Halderman et al. (U.S. Patent 6,372,544), as stated in the office action mailed 12/04/2002

### ***Response to Arguments***

In response to applicant's argument that Gilleo does not teach or suggest forming a second polymeric material that is partially cured over the first polymeric material and conductive bump material and Halderman does not teach or suggest forming a bilayer underfill, comprising the steps of forming a first polymeric material on a surface of a semiconductor wafer having interconnect pads disposed thereon; patterning the first polymeric to provide openings that expose the interconnect pads; forming conductive bump material in the openings; forming a second polymeric material that is partially cured over the first polymeric material and the conductive bump material; dicing the semiconductor wafer into individual chips; and bonding at least one of the individual chips to an external substrate, wherein during such bonding the conductive bump material

penetrates the second polymeric material and contacts a surface of the external substrate as recited in amended claim 1,

Gilleo discloses most of the above limitations (col. 1, line 61 to col. 9, line 33 and FIGS. 1-5) but fails to explicitly disclose that the second polymeric material is partially cured. Examiner only used the Halderman reference as a secondary reference to disclose the missing limitation of Gilleo. Additionally, the process of partially cured (B-staged) the polymeric material is well-known to one of ordinary skill in the art at the time of the invention. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Gilleo and the known process to enable the process of forming a second polymeric material that is partially cured over the first polymeric material and conductive bump material of Gilleo to be performed.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khiem D Nguyen whose telephone number is (703) 306-0210. The examiner can normally be reached on Monday-Friday (8:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaudhuri Olik can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-9179 for regular communications and (703) 746-9179 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


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K.N.

February 11, 2003

  
George Fourson  
Primary Examiner  
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